

Species at Risk Assessment - 947 Mapleview Drive East, Barrie



2019-08-08

Prepared for:
Mapleview Friday Corporation

Cambium Reference No.: 9266-001

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Maplevue Friday Corporation to conduct a Species at Risk Assessment at 947 Maplevue Drive East in the City of Barrie, Ontario (the Site; Figure 1). The proposed development of the Site, which falls within the Hewitt's Secondary Plan Area, includes multi-unit residential buildings. However, the Hewitt's Secondary Plan has not identified any natural heritage features on or adjacent to the subject property. A Species at Risk (SAR) Assessment is required in support of the ongoing pre-consultation process with the City of Barrie for a future Zoning By-law amendment (ZBA) application.

In Ontario, SAR receive protection through regulations under the provincial Endangered Species Act, 2007 (ESA) and the federal Species at Risk Act (SARA). This study serves to assess the potential presence of protected species and habitats, and anticipated impacts associated with the proposed development.



2.0 Applicable Natural Heritage Policy and Regulation

2.1 Endangered Species Act, 2007

Species listed as endangered or threatened on the Species at Risk in Ontario (SARO) list are protected under the provincial *Endangered Species Act, 2007* (ESA) (Government of Ontario, 2018). Section 9(1) of the ESA prohibits a person from killing, harming, harassing, capturing or taking a member of a species listed as endangered, threatened, or extirpated. Section 10(1) of the ESA prohibits the damage or destruction of habitat of species listed as endangered or threatened. Protection of special concern species is provided through designation of their habitat as significant wildlife habitat, a provincially protected natural heritage feature.

2.2 Species at Risk Act, 2002

The federal *Species at Risk Act* (SARA) was adopted in 2002 to prevent endangered or threatened species from becoming extinct or extirpated, to help in the recovery of endangered, threatened and extirpated species, and to manage species of special concern to help prevent them from becoming endangered or threatened. Habitat which is deemed necessary for the survival/recovery of a listed wildlife species, referred to as Critical Habitat, is protected under Section 56 of the SARA. The SARA applies to all federal lands in Canada; however, at-risk aquatic and migratory bird species located on private property in Ontario also receive protection under the Act.



3.0 Technical Approach and Data Collection Methods

3.1 Background Information Review

Existing background information pertaining to the Site and surrounding landscape was compiled and reviewed, as part of a comprehensive desktop exercise, to better understand local biophysical conditions. In southern Ontario, readily available data includes aerial orthophotography, topographic base mapping, and geological records. Natural area records and species occurrence were obtained from digital resources and reference materials. The comprehensive desktop review for this Site included the following resources:

- Natural Heritage Areas: Make-a-map (Ministry of Natural Resources and Forestry, 2018); Accessed June 11, 2019
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2018); Accessed June 11, 2019
- Ontario Breeding Birds Atlas (2001-2005) (Bird Studies Canada, 2005); Accessed June 11, 2019

3.2 Field Investigations

Information gathered through the background information review was used to guide the development of the fieldwork program. The purpose of the site visits was to verify information acquired through existing documentation and to gather additional site-specific information. The following field-based activities were carried out on the Site and are summarized in Table 1. Representative Site photos are included in Appendix A.

Table 1 Summary of Field Investigations

Date	Time On Site	Weather Conditions	Observer(s)	Activities
2019-06-11	13:00– 14:15	20°C, 0% cloud	D. Langlois B. Hnatiw	Habitat-based Wildlife Survey; Bat Maternity Roost Habitat Survey; Grassland Bird Survey
2019-06-12	07:35– 07:55	15°C, 0% cloud,	E. Silhanek	Breeding Bird/Grassland Bird Survey; Habitat-based Wildlife Survey



		Wind: 0-1, Noise: 2		
2019-06-24	08:30– 09:30	13°C, 100% cloud, Wind: 0, Noise: 1	E. Silhanek	Breeding Bird/Grassland Bird Survey; Ecological Land Classification/Vegetation Inventory

Notes: Wind speed is reported as a Beaufort Wind Scale value (0 = 0-2 kph, 1 = 3-5 kph, 2 = 6-11 kph, 3= 12-19 kph, 4 = 20-30 kph, 5 = 31-39 kph, 6 = 40-50 kph)

Noise is reported based on background noise levels: Index 0 – no appreciable effect, 1 – slightly affecting sampling, 2 – moderately affecting sampling, 3 – seriously affecting sampling, 4 – profoundly affecting sampling.

3.2.1 Ecological Land Classification and Vegetation Inventory

The Ecological Land Classification (ELC) System for Southern Ontario (Lee, 1998) was used to classify vegetation communities on the Site. Definitions of vegetation types are derived from the ELC for Southern Ontario First Approximation Field Guide (Lee, 1998) and the revised 2008 tables. ELC units were initially identified by aerial orthophoto interpretation during the desktop review. Field investigations served to confirm the type and extent of communities through vegetation inventory and soils assessment. The vegetation inventory for the Site was conducted on June 24, 2019.

3.2.2 Breeding Bird Surveys

Two (2) breeding bird surveys were carried out during the peak breeding season in May and June. Point counts were complete using components of the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (Ontario Breeding Bird Atlas, 2001) and the Forest Bird Monitoring Program (Cadman, Dewar, & Welsh, 1998) based on habitat characteristics. As outlined in the OBBA protocol, point counts are to be done between dawn and five (5) hours after dawn, when wind speed is low (<19 km/h) and in the absence of rain or thick fog. All species observations (visual and auditory) were recorded during a five (5) minute period. Each species observed was classified (Confirmed, Probable, Possible or Observed) and assigned a code based on the highest level of breeding evidence, as defined by the OBBA protocol.

The breeding bird surveys for the Site were conducted on June 12 and June 24, 2019. For the purpose of this survey, one (1) point count station was established to document avian activity. The point count station was located in the center of the subject property.



3.2.3 Habitat-Based Wildlife Surveys

Given the scale of the proposed development, a habitat-based approach was used to assess potential impacts to wildlife, consistent with standard practice. General habitat information gathered through the field investigations was used to assess the connectivity of the Site with the surrounding landscape and evaluate the ecological significance of the local area. Cambium staff actively searched for features that may provide specialized habitat for wildlife. These searches included inspecting tree cavities, overturning logs, rocks and debris, and scanning for scat, browse, sheds, fur, etc. Any evidence of breeding, forage, shelter, or nesting was noted and samples were collected for further identification, as necessary. Species and habitat observations were documented and photographed.

3.2.4 Targeted Species at Risk Surveys

3.2.4.1 Grassland Bird Surveys

Bobolink and Eastern Meadowlark are SAR listed as threatened on the SARO list. These species prefer natural grasslands and agricultural fields, including pasture, hayfields and abandoned fields (CUM vegetation type under ELC), for breeding and nesting sites. One or both of these species have been recorded in the vicinity of the Site within recent years. Bobolink are an area sensitive species within minimum area requirements to support breeding habitat of 5 ha, with larger areas generally providing additional habitat benefits (MNRF, 2018). Eastern Meadowlark are not strongly area sensitive; however, minimum area requirements to support breeding habitat is also 5 ha (MNRF, 2018). In order to determine if the Site is being used as nesting habitat by Bobolink or Eastern Meadowlark, avian surveys were conducted following the approved MNRF protocol for Eastern Meadowlark (Ministry of Natural Resources, 2013). This protocol is suitable for use with both of these species. The protocol requires that the Site be visited three (3) times between May 21 and July 3 (the nesting season for both of these species) with survey dates being evenly distributed within this period and conducted within 7-10 days of each other. Surveys are conducted between sunrise and four (4) hours after sunrise when wind speed is low (<12 km/h; Beaufort Wind Scale of 3 or lower) and with



light or no precipitation. Bird activity on the Site is observed from each point location(s) for 10 minutes and while travelling along transects between the point locations.

The grassland bird surveys for the Site were conducted in conjunction with the other field visits on June 11, June 12 and June 24. We note that the inter-survey period in early June (2 days) did not meet minimum protocol standard (7-10 days), due to the timing of project initiation; however, the level and timing of survey effort was deemed to be appropriate, given the limited grassland habitat available on the Site and the late onset of spring conditions in 2019.

3.2.4.2 Bat Maternity Roost Habitat Surveys

To determine if suitable habitat for bats existed on/or adjacent to the Site, Cambium staff conducted a bat maternity roost survey on June 11, 2019, using the methods detailed in the *Bat and Bat Habitats: Guidelines for Wind Power Projects* (the Guideline) (Ministry of Natural Resources, 2011). Although this MNR protocol is geared towards determining significant wildlife habitat, the purpose of the survey was to determine the presence of bats and bat habitat within the Site. The guideline requires that for sites with ≤ 10 hectares (ha) of treed forest or swamp ELC community types, a minimum of 10 randomly selected plots are to be surveyed, with an additional plot added per hectare, to a maximum of 35 plots for the project area. At each plot, the number of snag/cavity trees ≥ 25 cm DBH (diameter at breast height) within a 12.6 m radius (0.05 ha) is to be recorded. A calculation is then made to determine the snag density and if the number of cavity trees found met the criteria for maternity surveys. A snag or cavity tree is defined as a standing live or dead tree ≥ 25 cm DBH, with cracks, crevices, hollows, cavities and/or loose or naturally exfoliating bark appropriate for bat roosting.

For the purpose of this study, given that the treed area within the subject property was anticipated to be relatively small, the entire wooded area was surveyed for snag or cavity trees. Individual trees were marked with a GPS and the density of snag/cavity trees was calculated by dividing the total number of trees observed by the size of the wooded area surveyed.



4.0 Characterization of Natural Features and Functions

4.1 Landscape Position and Topography

The subject lands are located at 947 Mapleview Drive East, in the City of Barrie. The Site is situated approximately 0.6 km east of the intersection of Mapleview Drive East and Prince William Way. The subject property is located within the jurisdiction of the MNR Midhurst District.

The Site is currently vacant, approximately 2.6 acres in size, and comprised of open field habitat with mature trees surrounding the perimeter. The subject lot has relatively flat topography with no notable slopes or depressions. From a natural landscape perspective, the Site is located in Ecoregion 6E of Ontario (Crins, Gray, Uhlig, & Wester, 2009).

4.2 Vegetation Communities

A total of three (3) distinct vegetation communities and 50 plant species were identified on the Site. The vegetation communities were initially classified through aerial photograph interpretation and were confirmed through the vegetation inventories conducted on June 24, 2019. Representative photos are included in Appendix A and a vegetation species list is included as Appendix B.

Cultural Meadow (CUM)

The majority of the western portion of the property was comprised of an abandoned agricultural field consisting of successional weed species. This community was dominated by grasses, with a few sapling tree and shrub species growing throughout the area. Herbaceous plants identified in this community included smooth brome grass (*Bromus inermis*), common milkweed (*Asclepias syriaca*), tall goldenrod (*Solidago altissima*), orchard grass (*Dactylis glomerata*), New England aster (*Symphotrichum novae-angliae*), wild carrot (*Daucus carota*), ox-eye daisy (*Leucanthemum vulgare*), wild strawberry (*Fragaria virginiana*), cow vetch (*Vicia cracca*), common burdock (*Arctium minus*), poison ivy (*Toxicodendron radicans*), king devil hawkweed (*Pilosella piloselloides*) and black medic (*Medicago lupulina*). A few stems of Scot's



pine (*Pinus sylvestris*), Manitoba maple (*Acer negundo*) and northern red oak (*Quercus rubra*) saplings, all less than 1 m in height, were noted particularly along the perimeter of the field. A number of invasive species were also identified in this field, including goutweed (*Aegopodium podagraria*), garlic mustard (*Alliaria petiolata*) and black swallow-wort (*Vincetoxicum nigrum*).

Fence Row – CUL

The perimeter of the property was comprised of a treed fencerow consisting of a variety of tree and shrub species. The fencerow adjacent to Maplevue Drive East was dominated by Scot's pine while the trees along the west, south and east property boundaries included sugar maple (*Acer saccharum*), American elm (*Ulmus americana*), northern red oak, black cherry (*Prunus serotina*) and eastern white cedar (*Thuja occidentalis*). The shrub layer contained choke cherry (*Prunus virginiana*), Tartarian honeysuckle (*Lonicera tatarica*), staghorn sumac (*Rhus typhina*), Virginia creeper (*Parthenocissus quinquefolia*) and wild grape (*Vitis riparia*). The herbaceous layer consisted of smooth brome, tall goldenrod, orchard grass, common dandelion (*Taraxacum officinale*), tall buttercup (*Ranunculus acris*) and black swallow-wort.

Cultural Woodland - CUW

This community was located in the eastern portion of the property. Trees identified included Scot's pine, eastern white cedar, sugar maple and northern red oak. The shrub layer was dominated by staghorn sumac with lesser amounts of choke cherry, Tartarian honeysuckle, wild grape, wild red raspberry (*Rubus idaeus*) and Virginia creeper. The herbaceous layer consisted of goutweed, garlic mustard, tall goldenrod, common dandelion, common burdock and smooth brome.

4.3 Birds and Habitat Features

A total of 113 bird species were identified within the general area of the Site through the OBBA (10 km UTM Grid Square #17PK11), as listed in Appendix C. Of these, there were eleven (11) species listed on the COSEWIC list and eleven (11) species listed on the SARO list. These at-risk species have been included in the habitat-based screening for SAR presented in Section 4.7.



Breeding bird surveys were completed and a total of 11 species were identified on or adjacent to the Site, as shown in Appendix C. None of these had probable or confirmed breeding evidence.

4.4 Amphibians and Habitat Features

A total of 11 amphibian species were identified within the general area of the Site through the ORAA (10 km UTM Grid Square #17PK11). Of these, one (1) species is listed on the COSEWIC list and none were listed on the SARO list. These at-risk species have been included in the habitat-based screening for SAR presented in Section 4.7.

The subject property does not provide suitable habitat for amphibian breeding as no vernal pools, wetlands, or watercourses were present.

4.5 Reptiles and Habitat Features

A total of nine (9) reptile species were identified within the general area of the Site through the ORAA (10 km UTM Grid Square #17PK11). Of these, there were six (6) species listed on the COSEWIC list and four (4) species listed on the SARO list. These at risk species have been included in the habitat-based screening for SAR presented in Section 4.7.

During the 2019 field investigations, no candidate hibernaculum or nesting sites suitable for reptiles were observed.

4.6 Mammals and Habitat Features

The only incidental mammal sighting during the 2019 field investigations was an Eastern Chipmunk (*Tamias striatus*).

The Site is likely used by common woodland and urban species including White-tailed Deer (*Odocoileus virginianus*), Red Squirrel (*Sciurus vulgaris*), Raccoon (*Procyon lotor*) and Porcupine (*Erethizon dorsatum*).



4.6.1 Bat Maternity Roost Habitat

Based on the results of the bat maternity roost habitat survey, no candidate roost trees were identified on the Site.

4.7 Species at Risk

A SAR occurrence list has been compiled through the background review (as described in Section 3.1). In addition, this list has been augmented with direct field observations, as detailed in the previous sections. Cambium has employed a habitat-based screening, supplemented with direct field surveys when necessary, in order to identify suitable habitat for at-risk species located on or adjacent to the Site. A detailed habitat suitability analysis is provided in Appendix D and a discussion of the results is provided below.

The Site and adjacent lands were determined have moderate potential to provide habitat for the following species:

- Eastern Meadowlark (THR)
- Bobolink (THR)

The following sections provide a brief overview of the species that are most likely to occur on the Site, based on the combined results of the background information review and field investigations. Potential impacts are discussed and species-specific mitigation strategies are provided.

4.7.1 Grassland Birds

Two (2) grassland bird species were identified as potentially occurring in the area: Bobolink and Eastern Meadowlark. Both of these SAR are listed as Threatened (provincially and federally), and prefer large open meadows, including agricultural pasture and hayfields, for breeding and nesting sites. As such, Eastern Meadowlark and Bobolink often co-exist in suitable habitat. Neither of the species were recorded on the Site during the surveys conducted in 2019. The subject property does not provide optimal habitat for these species as



the open field on the Site is relatively small and is adjacent to a roadway, rural residential properties and nearby active construction

Although these species were not observed during the surveys Section 5.0 provides recommendations to minimize impacts to all breeding birds.



5.0 Recommendations

The proposed development of the property should not have a significant negative impact on SAR or SAR habitat, provided that the following mitigation measures and best practices are implemented. Recommendations have been made to minimize impacts during site preparation, construction, and post-construction activities.

5.1 General

- Clearing, grubbing and grading activities should be restricted to the proposed development envelope (only tree/vegetation preservation areas would be excluded from the development envelope, if identified).
- Migratory bird nests, eggs and young are protected under the Migratory Birds Convention Act, 1994. Vegetation clearing on the Site should occur outside the breeding bird season, which extends from April 15 to August 15 in the area (as per Environment and Climate Change Canada Guidelines). Where feasible, construction should also take place outside of this period. In the event that construction is planned to proceed during the breeding season, the area should be investigated for the presence of breeding birds and nests containing eggs and/or young, prior to any site alteration. Any nests observed should be left undisturbed until young have fledged or the nest is determined to be inactive.
- Prior to construction activities on the Site, the development envelope should be searched for evidence of wildlife. If any individuals are encountered, they should be photographed and allowed time to move out of harm's way. SAR observations should be reported to the Ministry of Environment, Conservation and Parks immediately.
- While the Site does not provide ideal habitat for turtle species, workers should be aware of the nesting season for turtles which is May 15 to August 15.
- To limit reptiles, amphibians and small mammals from entering the Site, wildlife exclusion fencing should be installed surrounding the development area, prior to site alteration.



6.0 Closing

Based on our assessment of existing conditions and review of available records, the proposed development is unlikely to negatively impact SAR and their habitats, provided that the recommendations listed in Section 5.0 are adhered to. The information presented herein demonstrates that the proposed development can be carried out in a manner that is compliant with applicable SAR policy and legislation.

Respectfully submitted,

Cambium Inc.

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JPP/djl

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Appended Figures



Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- River Valley Connections

Land Use Designations

- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area



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Appendix A

Photographic Log



Photo 1 View of the property looking west, June 2019.



Photo 2 View of the property looking north, June 2019.



Photo 3 View of the small pocket of trees in the center of the property, June 2019.



Appendix B

Vegetation Species List



Appendix B - Vegetation Species List

Common name	Scientific name	COSEWIC	SARO	S-Rank	CoC	Vegetation Community		
						CUM1	CUL	FOM
American Elm	<i>Ulmus americana</i>	-	-	S5	3		x	
Bittersweet Nightshade	<i>Solanum dulcamara</i>	-	-	SNA	-	x		
Black Cherry	<i>Prunus serotina</i> var. <i>serotina</i>	-	-	S5	3		x	
Black Medic	<i>Medicago lupulina</i>	-	-	SNA	-	x		
Black Swallow-wort	<i>Vincetoxicum nigrum</i>	-	-	SNA	-	x	x	
Blue Spruce	<i>Picea pungens</i>	-	-	SNA	-		x	
Bull Thistle	<i>Cirsium vulgare</i>	-	-	SNA	-	x		
Canada Goldenrod	<i>Solidago canadensis</i> var. <i>canadensis</i>	-	-	S5	1	x		
Choke Cherry	<i>Prunus virginiana</i> var. <i>virginiana</i>	-	-	S5	2		x	
Common Burdock	<i>Arctium minus</i>	-	-	SNA	-	x		x
Common Dandelion	<i>Taraxacum officinale</i>	-	-	SNA	-		x	x
Common Goatsbeard	<i>Aruncus dioicus</i> var. <i>vulgaris</i>	-	-	SNA	-	x		
Common Milkweed	<i>Asclepias syriaca</i>	-	-	SNA	-	x		
Eastern White Cedar	<i>Thuja occidentalis</i>	-	-	S5	4		x	
Garlic Mustard	<i>Alliaria petiolata</i>	-	-	SNA	-			x
Goutweed	<i>Aegopodium podagraria</i>	-	-	SNA	-	x		x
King Devil Hawkweed	<i>Pilosella piloselloides</i> ssp. <i>praealta</i>	-	-	SNA	-	x		
Manitoba Maple	<i>Acer negundo</i>	-	-	S5	-	x		
New England Aster	<i>Symphyotrichum novae-angliae</i>	-	-	S5	2	x		
Northern Mountain-ash	<i>Sorbus decora</i>	-	-	S5	8		x	
Northern Red Oak	<i>Quercus rubra</i>	-	-	S5	6	x	x	x
Orchard Grass	<i>Dactylis glomerata</i>	-	-	SNA	-	x	x	
Oxeye Daisy	<i>Leucanthemum vulgare</i>	-	-	SNA	-	x		
Philadelphia Fleabane	<i>Erigeron philadelphicus</i> var. <i>philadelphicus</i>	-	-	S5	1	x		
Poison Ivy	<i>Toxicodendron radicans</i>	-	-	S5	2	x		
Red Clover	<i>Trifolium pratense</i>	-	-	SNA	-	x		
Red Elderberry	<i>Sambucus racemosa</i> ssp. <i>pubens</i> var. <i>pubens</i>	-	-	S5	5		x	
Red-osier Dogwood	<i>Cornus sericea</i>	-	-	S5	2	x	x	x
Riverbank Grape	<i>Vitis riparia</i>	-	-	S5	-		x	
Scots Pine	<i>Pinus sylvestris</i> var. <i>syvestris</i>	-	-	SNA	-	x	x	x
Smooth Brome	<i>Bromus inermis</i>	-	-	SNA	-	x	x	x
Staghorn Sumac	<i>Rhus typhina</i>	-	-	S5	1	x	x	x
Sugar Maple	<i>Acer saccharum</i>	-	-	S5	4		x	x
Sulphur Cinquefoil	<i>Potentilla recta</i>	-	-	SNA	-	x		
Tall Buttercup	<i>Ranunculus acris</i>	-	-	SNA	-		x	
Tall Goldenrod	<i>Solidago altissima</i>	-	-	S5	1	x	x	x
Tatarian Honeysuckle	<i>Lonicera tatarica</i>	-	-	SNA	-		x	
Tufted Vetch	<i>Vicia cracca</i>	-	-	SNA	-	x		
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	-	-	S4?	6	x	x	x
Wild Carrot	<i>Daucus carota</i>	-	-	SNA	-	x		
Wild Red Raspberry	<i>Rubus idaeus</i> ssp. <i>strigosus</i>	-	-	S5	2	x	x	x
Wild Strawberry	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	-	-	S5	2	x	x	
Yellow Avens	<i>Geum aleppicum</i>	-	-	S5	2		x	

Notes:

- COSEWIC - Committee on the Status of Endangered Wildlife in Canada
- SARO - Species at Risk in Ontario
- S-Rank - Provincial rank used by the Natural Heritage Information Centre to prioritize protection efforts
- CoC - Coefficient of Conservatism
- SC - Special Concern
- THR - Threatened
- END - Endangered
- NAR - Not at risk
- S1 - Extremely rare in Ontario
- S2 - Very rare in Ontario
- S3 - Rare to uncommon in Ontario
- S4 - Considered to be common in Ontario
- S5 - Species is widespread in Ontario
- SNA - Not Applicable (typically introduced species)
- SU - Status is uncertain due to insufficient information
- "?" - Indicates uncertainty in classification due to lack of information



Appendix C
Bird Species List


Appendix C - Ontario Breeding Bird Atlas: GRID SQUARE #17PK11

Common name	Scientific name	COSEWIC	SARO	S-Rank
Alder Flycatcher	<i>Empidonax alnorum</i>	-	-	S5B
American Black Duck	<i>Anas rubripes</i>	-	-	S4
American Crow	<i>Corvus brachyrhynchos</i>	-	-	S5B
American Goldfinch	<i>Spinus tristis</i>	-	-	S5B
American Kestrel	<i>Falco sparverius</i>	-	-	S4
American Redstart	<i>Setophaga ruticilla</i>	-	-	S5B
American Robin	<i>Turdus migratorius</i>	-	-	S5B
American Woodcock	<i>Scolopax minor</i>	-	-	S4B
Baltimore Oriole	<i>Icterus galbula</i>	-	-	S4B
Bank Swallow	<i>Riparia riparia</i>	THR	THR	S4B
Barn Swallow	<i>Hirundo rustica</i>	THR	THR	S4B
Belted Kingfisher	<i>Megaceryle alcyon</i>	-	-	S4B
Black/Yellow-billed Cuckoo	<i>Coragyps atratus</i>	-	-	SNA
Black-and-white Warbler	<i>Mniotilta varia</i>	-	-	S5B
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	-	-	S5B
Blackburnian Warbler	<i>Setophaga fusca</i>	-	-	S5B
Black-capped Chickadee	<i>Poecile atricapillus</i>	-	-	S5
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	-	-	S5B
Black-throated Green Warbler	<i>Setophaga virens</i>	-	-	S5B
Blue Jay	<i>Cyanocitta cristata</i>	-	-	S5
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	-	-	S4B
Blue-winged Teal	<i>Anas discors</i>	-	-	S4
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	THR	S4B
Broad-winged Hawk	<i>Buteo platypterus</i>	-	-	S5B
Brown Creeper	<i>Certhia americana</i>	-	-	S5B
Brown Thrasher	<i>Toxostoma rufum</i>	-	-	S4B
Brown-headed Cowbird	<i>Molothrus ater</i>	-	-	S4B
Canada Goose	<i>Branta canadensis</i>	-	-	S5
Canada Warbler	<i>Cardellina canadensis</i>	THR	SC	S4B
Cedar Waxwing	<i>Bombycilla cedrorum</i>	-	-	S5B
Cerulean Warbler	<i>Setophaga cerulea</i>	END	THR	S3B
Chestnut-sided Warbler	<i>Setophaga pennsylvanica</i>	-	-	S5B
Chipping Sparrow	<i>Spizella passerina</i>	-	-	S5B
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	-	-	S4B
Common Grackle	<i>Quiscalus quiscula</i>	-	-	S5B
Common Loon	<i>Gavia immer</i>	NAR	NAR	S5B,S5N
Common Merganser	<i>Mergus merganser</i>	-	-	S5B,S5N
Common Nighthawk	<i>Chordeiles minor</i>	SC	SC	S4B
Common Yellowthroat	<i>Geothlypis trichas</i>	-	-	S5B
Cooper's Hawk	<i>Accipiter cooperii</i>	NAR	NAR	S4
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	NAR	NAR	S5B
Downy Woodpecker	<i>Picoides pubescens</i>	-	-	S5
Eastern Bluebird	<i>Sialia sialis</i>	NAR	NAR	S5B



Eastern Kingbird	<i>Tyrannus tyrannus</i>	-	-	S4B
Eastern Meadowlark	<i>Sturnella magna</i>	THR	THR	S4B
Eastern Phoebe	<i>Sayornis phoebe</i>	-	0	S5B
Eastern Screech-Owl	<i>Megascops asio</i>	NAR	NAR	S4
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4B
European Starling	<i>Sturnus vulgaris</i>	-	-	SNA
Field Sparrow	<i>Spizella pusilla</i>	-	-	S4B
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	THR	SC	S4B
Gray Catbird	<i>Dumetella carolinensis</i>	-	-	S4B
Great Blue Heron	<i>Ardea herodias</i>	-	-	S4
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	-	-	S4B
Great Horned Owl	<i>Bubo virginianus</i>	-	-	S4
Green Heron	<i>Butorides virescens</i>	-	-	S4B
Hairy Woodpecker	<i>Picoides villosus</i>	-	-	S5
Hooded Merganser	<i>Lophodytes cucullatus</i>	-	-	S5B,S5N
Horned Lark	<i>Eremophila alpestris</i>	-	-	S5B
House Finch	<i>Haemorhous mexicanus</i>	-	-	SNA
House Sparrow	<i>Passer domesticus</i>	-	-	SNA
House Wren	<i>Troglodytes aedon</i>	-	-	S5B
Indigo Bunting	<i>Passerina cyanea</i>	-	-	S4B
Killdeer	<i>Charadrius vociferus</i>	-	-	S5B,S5N
Least Flycatcher	<i>Empidonax minimus</i>	-	-	S4B
Mallard	<i>Anas platyrhynchos</i>	-	-	S5
Merlin	<i>Falco columbarius</i>	NAR	NAR	S5B
Mourning Dove	<i>Zenaida macroura</i>	-	-	S5
Mourning Warbler	<i>Geothlypis philadelphia</i>	-	-	S4B
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	-	-	S5B
Northern Cardinal	<i>Cardinalis cardinalis</i>	-	-	S5
Northern Flicker	<i>Colaptes auratus</i>	-	-	S4B
Northern Goshawk	<i>Accipiter gentilis</i>	NAR	NAR	S4
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	-	-	S4B
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	-	-	S4
Northern Waterthrush	<i>Parkesia noveboracensis</i>	-	-	S5B
Ovenbird	<i>Seiurus aurocapilla</i>	-	-	S4B
Pileated Woodpecker	<i>Dryocopus pileatus</i>	-	-	S5
Pine Warbler	<i>Setophaga pinus</i>	-	-	S5B
Purple Finch	<i>Haemorhous purpureus</i>	-	-	S4B
Purple Martin	<i>Progne subis</i>	-	-	S3S4B
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	-	-	S4
Red-breasted Merganser	<i>Mergus serrator</i>	-	-	S4B,S5N
Red-breasted Nuthatch	<i>Sitta canadensis</i>	-	-	S5
Red-eyed Vireo	<i>Vireo olivaceus</i>	-	-	S5B
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	SC	S4B
Red-tailed Hawk	<i>Buteo jamaicensis</i>	NAR	NAR	S5
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	-	-	S4
Ring-billed Gull	<i>Larus delawarensis</i>	-	-	S5B,S4N
Rock Pigeon	<i>Columba livia</i>	-	-	SNA
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	-	-	S4B
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	-	-	S5B



Ruffed Grouse	<i>Bonasa umbellus</i>	-	-	S4
Savannah Sparrow	<i>Passerculus sandwichensis</i>	-	-	S4B
Scarlet Tanager	<i>Piranga olivacea</i>	-	-	S4B
Song Sparrow	<i>Melospiza melodia</i>	-	-	S5B
Spotted Sandpiper	<i>Actitis macularius</i>	-	-	S5
Swamp Sparrow	<i>Melospiza georgiana</i>	-	-	S5B
Tree Swallow	<i>Tachycineta bicolor</i>	-	-	S4B
Trumpeter Swan	<i>Cygnus buccinator</i>	NAR	NAR	S4
Turkey Vulture	<i>Cathartes aura</i>	-	-	S5B
Veery	<i>Catharus fuscescens</i>	-	-	S4B
Vesper Sparrow	<i>Pooecetes gramineus</i>	-	-	S4B
Warbling Vireo	<i>Vireo gilvus</i>	-	-	S5B
Whip-poor-will	<i>Numenius phaeopus</i>	-	-	S3B,S4N
White-breasted Nuthatch	<i>Sitta carolinensis</i>	-	-	S5
Wild Turkey	<i>Meleagris gallopavo</i>	-	-	S5
Winter Wren	<i>Troglodytes hiemalis</i>	-	-	S5B
Wood Duck	<i>Aix sponsa</i>	-	-	S5
Wood Thrush	<i>Hylocichla mustelina</i>	THR	SC	S4B
Yellow Warbler	<i>Setophaga petechia</i>	-	-	S5B
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	-	-	S5B
Yellow-rumped Warbler	<i>Setophaga coronata</i>	-	-	S5B

Notes:

COSEWIC - Committee on the Status of Endangered Wildlife in Canada

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S-Rank - Provincial rank used by the Natural Heritage Information Centre to prioritize protection efforts

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Appendix C - Avifauna Survey List

Common name	Scientific name	COSEWIC	SARO	S-Rank
American Goldfinch	<i>Spinus tristis</i>	-	-	S5B
American Robin	<i>Turdus migratorius</i>	-	-	S5B
Black-capped Chickadee	<i>Poecile atricapillus</i>	-	-	S5
Brown-headed Cowbird	<i>Molothrus ater</i>	-	-	S4B
Canada Goose	<i>Branta canadensis</i>	-	-	S5
Chipping Sparrow	<i>Spizella passerina</i>	-	-	S5B
European Starling	<i>Sturnus vulgaris</i>	-	-	SNA
Mourning Dove	<i>Zenaida macroura</i>	-	-	S5
Northern Cardinal	<i>Cardinalis cardinalis</i>	-	-	S5
Song Sparrow	<i>Melospiza melodia</i>	-	-	S5B
Yellow Warbler	<i>Setophaga petechia</i>	-	-	S5B

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Appendix C - Avifauna Observations

Common name	12-Jun-19 CUM 1-1	24-Jun-19 CUM 1-1
American Goldfinch	S	X
American Robin	H	H
Black-capped Chickadee		H
Brown-headed Cowbird	S	
Canada Goose	X	
Chipping Sparrow	S	S
European Starling		H
Mourning Dove		X
Northern Cardinal	S	S
Song Sparrow	S	S
Yellow Warbler	H	

Note:

Shaded cells indicate probable or confirmed breeding by the species within the vegetation community.

Observed

X = Species observed in its breeding season (no breeding evidence)

Possible Breeding

H = Species observed in its breeding season in suitable nesting habitat

S= Singing male present, or breeding calls heard, in its breeding season in suitable nesting habitat

Probable Breeding

P= Pair observed in their breeding season in suitable nesting habitat

T= Permanent territory presumed through registration of territorial song on at least 2 days, a week apart, at the same place

D= Courtship or display between a male and a female or 2 males, including courtship feeding or copulation

V= Visiting probable nest site

A = Agitated behaviour or anxiety calls of an adult

B= Brood patch on adult female or cloacal protuberance on adult male

N= Nest-building or excavation of nest hole

Confirmed Breeding

DD= Distraction display or injury feigning

NU= Used nest or egg shell found (occupied or laid within the period of study)

FY= Recently fledged young or downy young, including young incapable to sustain flight

AE= Adults leaving or entering nest site in circumstances indicating occupied nest

FS= Adult carrying faecal sac

CF= Adult carrying food for young

NE= Nest containing eggs

NY= Nest with young seen or heard



Appendix D

Species at Risk Screening



COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS			PROVINCIAL STATUS		HABITAT REQUIREMENTS	SOURCE	POTENTIAL HABITAT PRESENT (High/Moderate/Low)	RATIONALE	FIELD SURVEY RESULTS	IMPLICATIONS AND IMPACTS
		SARA	SCHEDULE	COSEWIC	SAARO	S-RANK						
AVIFAUNA												
Bank Swallow	<i>Riparia riparia</i>	THR	1	THR	THR	S4B	The Bank Swallow is listed as a threatened species both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits, including banks of rivers and lakes, bluffs, active sand and gravel pits, road cuts and stockpiles of soils. The birds breed in colonies ranging from several to a few thousand pairs (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	No suitable vertical faces present on Site.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Barn Swallow	<i>Hirundo rustica</i>	THR	1	THR	THR	S4B	The Barn Swallow is listed both federally and provincially as threatened (COSEWIC, 2018; COSSARO, 2018). This species prefer to nest within human made structures such as barns, bridges, and culverts. Barn Swallow nests are cup-shaped and made of mud; they are typically attached to horizontal beams or vertical walls underneath an overhang. (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	The subject property is vacant. No suitable structures present for Barn Swallow nesting.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Bobolink	<i>Dolichonyx oryzivorus</i>	THR	1	THR	THR	S4B	The Bobolink is listed as threatened both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species prefers tall, grassy meadows, hayfields and some croplands, and feeds and nests on the ground (Ministry of Natural Resources and Forestry, 2018).	OBBA	Moderate	Subject property is an open field with fields on adjacent property.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Canada Warbler	<i>Cardellina canadensis</i>	THR	1	THR	SC	S4B	The Canada Warbler is listed as threatened federally (COSEWIC, 2018) and as a species of special concern provincially (COSSARO, 2018). This species can be found in a variety of forest types, but is most abundant in moist, mixed forests with a well-developed, dense shrub layer. Nests are usually located on or near the ground on mossy logs, and along stream banks (Committee on the Status of Endangered Wildlife in Canada, 2008).	OBBA	Low	The woodland present at the Site is mainly limited to the property boundaries. The woodland at the Site is also disconnected from other woodlands, as the Site is surrounded by rural residential and agricultural lands.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Cerulean Warbler	<i>Setophaga cerulea</i>	END	1	END	THR	S3B	The Cerulean Warbler is listed as endangered federally (COSEWIC, 2018) and as threatened provincially (COSSARO, 2018). This species requires relatively large tracts of mature deciduous forest (>100 ha), and nests in older, second-growth deciduous forests. During breeding season, it is found in relatively large tracts of mature deciduous forests that feature large, tall trees and an open understorey. The species is considered area-sensitive (Environment Canada, 2018).	OBBA	Low	The woodland present at the Site is mainly limited to the property boundaries. The woodland at the Site is also disconnected from other woodlands, as the Site is surrounded by rural residential and agricultural lands.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Common Nighthawk	<i>Chordeiles minor</i>	THR	1	SC	SC	S4B	The Common Nighthawk is listed as threatened nationally (COSEWIC, 2018) and is of special concern provincially (COSSARO, 2018). This species is typically found in open areas such as gravel beaches, rock outcrops and burned woodlands, that have little to no ground vegetation. This species can also be found in highly disturbed locations such as clear cuts, mine tailing areas, cultivated fields, urban parks, gravel roads, and orchards (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	No suitable habitat present on Site.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Eastern Meadowlark	<i>Sturnella magna</i>	THR	1	THR	THR	S4B	The Eastern Meadowlark is listed as threatened both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species prefers pastures and hayfields, but is also found to breed in orchards, shrubby fields and human use areas such as airports and roadsides. Eastern Meadowlark can nest from early May to mid-August, in nests that are built on the ground and well-camouflaged with a roof woven from grasses (Ministry of Natural Resources and Forestry, 2018).	OBBA / NHIC	Moderate	Subject property is an open field with fields on adjacent property.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	1	SC	SC	S4B	The Eastern Wood-pewee is designated as a species of special concern both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species of "flycatcher", a bird that eats flying insects, lives in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It prefers intermediate-age forest stands with little understorey vegetation (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	The woodland present at the Site is mainly limited to the property boundaries. The woodland at the Site is also disconnected from other woodlands, as the Site is surrounded by rural residential and agricultural lands.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Golden Winged Warbler	<i>Vermivora chrysoptera</i>	THR	1	THR	SC	S4B	The Golden-winged Warbler is listed as a special concern species provincially (COSSARO, 2018) and a threatened species federally (COSEWIC, 2018). This species inhabits early successional habitat of old fields and prefers to nest in areas with young shrubs surrounded by mature forest, locations that have recently been disturbed, such as field edges, hydro or utility right-of-ways, or logged areas (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	Tree cover in the area limited to around the property perimeter. No mature forest present.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR	1	END	SC	S4B	The Red-headed Woodpecker is listed provincially as a special concern species (COSSARO, 2018) and federally as threatened (COSEWIC, 2018). This species can be found in open woodland and woodland edges, often near man-made landscapes such as parks, golf courses and cemeteries. These areas must contain a large number of dead trees for perching and nesting (Ministry of Natural Resource and Forestry, 2018).	OBBA	Low	No suitable habitat present on Site.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Wood Thrush	<i>Hylocichla mustelina</i>	THR	1	THR	SC	S4B	The Wood Thrush is a species of special concern provincially (COSSARO, 2018) and threatened nationally (COSEWIC, 2018). It breeds in deciduous and mixed forests with a moderate understorey, shade and abundant leaf litter where it forages for food, including larval and adult insects as well as plant material (Ministry of Natural Resources and Forestry, 2018).	OBBA	Low	The woodland present at the Site is mainly limited to the property boundaries. The woodland at the Site is also disconnected from other woodlands, as the Site is surrounded by rural residential and agricultural lands.	None observed during the 2019 breeding bird surveys.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
HERPTILES												
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	1	END	THR	S3	Blanding's Turtles are designated as threatened both federally and provincially (COSEWIC, 2018; COSSARO, 2018). Blanding's Turtles spend the majority of their life cycle in the aquatic environment, using terrestrial sites for travel between habitat patches and to lay clutches of eggs. These turtles prefer shallow nutrient rich water with organic sediment and dense vegetation. Blanding's Turtles nest in dry coniferous and mixed forest habitats, as well as fields and roadsides (Government of Canada, 2015).	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.



COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS			PROVINCIAL STATUS		HABITAT REQUIREMENTS	SOURCE	POTENTIAL HABITAT PRESENT (High/Moderate/Low)	RATIONALE	FIELD SURVEY RESULTS	IMPLICATIONS AND IMPACTS
		SARA	SCHEDULE	COSEWIC	SAARO	S-RANK						
Northern Map Turtle	<i>Graptemys geographica</i>	SC	1	SC	SC	S3	The Northern Map Turtle is listed as a species of special concern both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This medium sized turtle lives in larger lakes and rivers that contain an abundance of their primary prey species; molluscs. This species can often be seen in large groups basking together on rocks and logs (Ministry of Natural Resources and Forestry, 2018).	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Snapping Turtle	<i>Chelydra serpentina</i>	SC	1	SC	SC	S3	The Snapping Turtle is considered a species of special concern provincially and federally (COSSARO, 2018; COSEWIC, 2018). This species spends the majority of their lives in water and will travel upland to gravel or sandy embankments, roadsides, along railway lines or beaches to lay their eggs (Ontario Ministry of Natural Resources and Forestry, 2018).	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Eastern Milksnake	<i>Lampropeltis triangulum</i>	SC	1	SC	NAR	S4	The Eastern Milksnake is listed as a special concern species federally (COSEWIC, 2018) and has recently been recently delisted from being a species at risk in Ontario (Ministry of Natural Resources and Forestry, 2018). The preferred prey of milksnakes are mice, small rodents, and ground nesting birds which are amply found in and surrounding agricultural outbuildings. The milksnake is secretive and is not likely to be encountered during the day or at night while hunting.	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Common Five-lined Skink (Southern Shield Population)	<i>Plestiodon fasciatus</i>	SC	1	SC	SC	S3	The Common Five-lined Skink has two (2) distinct populations in Ontario. The southern Shield population is listed as a species of special concern both federally and provincially (COSEWIC, 2018; COSSARO, 2018). The southern Shield population can be found underneath rocks on open bedrock in forests and like to bask on sunny rocks and logs. They hibernate in crevices among rocks or buried in the soil. (Ministry of Natural Resources and Forestry, 2018).	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Western Chorus Frog	<i>Pseudacris triseriata</i>	THR	1	THR	-	S3	The Great Lakes/St. Lawrence – Canadian Shield population of the Western Chorus Frog is federally listed as threatened by COSEWIC. This small frog is primarily a lowland terrestrial species that requires access to terrestrial and aquatic habitats in close proximity to one another. Relying on marshes and wooded wetlands adjacent to forested habitats, this species also requires isolated, predator free pools for breeding. Temporary pools, such as vernal pools in wooded areas, are preferred. This species hibernates terrestrially in a variety of environments, including leaf litter, wood debris, and vacant animal burrows (Government of Canada, 2016)	ORAA	Low	No suitable habitat present on Site.	No survey undertaken	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
MAMMALS												
Little Brown Myotis	<i>Myotis lucifugus</i>	END	1	END	END	S4	Little Brown Myotis is listed as an endangered bat species both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species is threatened by a disease known as white nose syndrome, caused by a fungus from Europe. This species often select attics, abandoned buildings and barns for summer colonies where they can raise their young. Little Brown Bats hibernate from October/November to March/April, most often in caves or abandoned mines that are humid and remain above freezing (Ministry of Natural Resources and Forestry, 2018).	Cambium	Low	Open areas of the Site may provide foraging habitat for bats; however there are no riparian or wetland areas in close proximity that would support high quality food sources.	No candidate maternity roost trees identified on the Site.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Northern Myotis	<i>Myotis septentrionalis</i>	END	1	END	END	S3	Northern Myotis is listed both federally and provincially as an endangered species (COSEWIC, 2018; COSSARO, 2018). This species is also threatened by a disease known as white nose syndrome, caused by a fungus from Europe. This species is found in boreal forests, roosting under loose bark and in the cavities of trees. These bats hibernate from October/November to March/April, most often in caves or abandoned mines (Ministry of Natural Resources and Forestry, 2018).	Cambium	Low	Open areas of the Site may provide foraging habitat for bats; however there are no riparian or wetland areas in close proximity that would support high quality food sources.	No candidate maternity roost trees identified on the Site.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Tri-colored Bat	<i>Perimyotis subflavus</i>	END	1	END	END	S3?	The Tri-colored Bat is listed as endangered both federally and provincially (COSEWIC, 2018; COSSARO, 2018). This species is considered rare in this region of Ontario which is at the northernmost limit of the natural range. These bats prefer to nest in foliage, tree cavities and woodpecker holes, and are occasionally found in buildings; though this is not their preferred habitat. Winter hibernation takes place in caves, mines and deep crevices. Tri-colored Bats feed primarily on small insects and prefer an open forest habitat type in proximity to water (University of Michigan Museum of Zoology, 2004).	Cambium	Low	Open areas of the Site may provide foraging habitat for bats; however there are no riparian or wetland areas in close proximity that would support high quality food sources.	No candidate maternity roost trees identified on the Site.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.
Eastern Small-footed Myotis	<i>Myotis leibii</i>	No Status	No Schedule	No Status	END	S2S3	The Eastern Small-footed Myotis is listed as an endangered bat species provincially (COSSARO, 2018). This species is threatened by a disease known as white nose syndrome, caused by a fungus from Europe. In the spring and summer, Eastern Small-footed Myotis will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. They change their roosting locations daily and hunt at night for insects. They hibernate in winter, often in caves and abandoned mines (Ministry of Natural Resources and Forestry, 2018).	Cambium	Low	Open areas of the Site may provide foraging habitat for bats; however there are no riparian or wetland areas in close proximity that would support high quality food sources.	No candidate maternity roost trees identified on the Site.	Any potential impacts to this species resulting from the development should be sufficiently mitigated provided the recommendations in Section 5.0 are adhered to.

SC - Special Concern
 THR - Threatened
 END - Endangered
 S1 - Extremely rare in Ontario
 S2 - Very rare in Ontario
 S3 - Rare to uncommon in Ontario
 S4 - Considered to be common in Ontario
 S5 - Species is widespread in Ontario
 SH - Possibly extirpated
 S#H - Indicates insufficient information exists to assign a single rank.
 S#? - Indicates some uncertainty with the classification due to insufficient data.
 S#N - Nonbreeding
 S#B - Breeding